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ABSTRACT

This investigation sought to determine the effects of a perceptual modeling concept, presented during the preservice experience, on the verbal behaviors of student teachers in their student teaching experience. Fifty-two preservice teachers were randomly assigned to an experimental or control group. The experimental group received instruction through perceptual modeling of the ten categories of a modified Flanders Interaction Analysis System presented via video tape and discussion. The control group received instruction through discussion and other verbal means only concerning the concepts of the modified Flanders System. Subjects were observed in the classrooms by three observers utilizing a modified Flanders instrument. Verbal behavior was recorded in each of five observations of 15 minutes each for each subject. A multiple t test program was used to compare the selected verbal behavior variables of the two groups. Student teachers receiving perceptual modeling exhibited significantly different verbal behavior. The experimental group 1) used more acceptance of student feelings, 2) used more praise, 3) used more acceptance and clarification of student ideas, 4) used less lecture, 5) spent less time in direction giving, 6) spent less time in criticizing students, 7) stimulated more student talk, 8) used less extended direct talk, 9) used more indirect talk, and 10) used more extended indirect talk. (Author)

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THE EFFECT OF PERCEPTUAL AND SYMBOLIC MODELS ON THE VERBAL BEHAVIORS OF STUDENT TEACHERS

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INTRODUCTION

Interaction analysis has been proved a valuable teacher education instrument in the pre-service program, Furst (5), Hough and Ober (6), and Zahn (10); also, it has provided teacher educators with an objective instrument for assessing teacher behavior, Furst (5), Flanders (1), Lohman, Ober, and Hough (2).

With the availability of video equipment in most colleges, another dimension in teacher education has been added. Techniques such as video taped feedback, micro-teaching, and simulation have been and are being explored for incorporation into the teacher education program utilizing the medium of video.

The modeling concept has been explored and developed recently for use in pre-service teacher education by Orme (8), and Young (9). These studies revealed that student teachers viewing a perceptual model tended to incorporate more of the modeled teaching behaviors into their teaching than those who were trained by a symbolic model. Further, a combination of the two methods was even more effective than either one alone, Orme (8), Young (9).

Allen et al. (4) studied the effects of both positive and negative models on teacher behavior. The use of the positive model during training proved to be more effective, as the teachers here attempted to incorporate more of the modeled behavior into their later lessons.

Recently, Bandura (3) has developed the simulus contiguity and mediational theory which sets forth the idea that the learner forms sensory images as he observes a model. These sensory images become structured, and through contiguity the perceptual responses are strengthened. Bandura also postulates that the learner acquires verbal representations of the model's behavior,

which are associated with the perceptual images, suggesting that if the observer verbalizes the model's behavior he will acquire it more readily.

PROBLEM

This research project was intended to determine the effects of a perceptual modeling concept, presented during the pre-service experience, on the verbal behaviors of student teachers in their student teaching experience. The study sought:

1. To determine the effects of a perceptual modeling concept of a modified Flanders Interaction Analysis System on the verbal behaviors of secondary student teachers.
2. To identify those categories or behaviors which are most affected by a perceptual modeling concept of the modified Flanders Interaction Analysis System.

METHODOLOGY

Sampling Procedures

Fifty-two subjects, both male and female, were selected from the total population of one hundred sixty-five secondary teacher trainees who were enrolled in Education 120 during the second semester of the 1969-70 college year. Education 120 is a general methods pre-service course taken by students immediately preceding the student teaching program at West Virginia University.

The subjects were selected by using the table of random numbers. The selection process began by the listing in alphabetical order of all teacher-

trainees according to their content area specialization. The content areas were social studies, science, language arts, and math. Each student was given a number, the first student selected was placed in treatment group one and the second was placed in treatment group two, and so on, until the sampling was completed for the content area. This procedure was followed for each of the other content areas until the total sampling was completed. Only eleven math teacher-trainees were available; therefore, ten of the total math teacher-trainee population were selected for this study. In the other content areas, fourteen social studies majors were randomly chosen from a total of twenty; fourteen language arts majors were chosen from a population of twenty-three; and fourteen science majors were selected from a total of seventeen. Each of the treatment groups except math, which had ten subjects, contrained fourteen subjects each for a total of fifty-two subjects.

All subjects had completed all of the prerequisite courses prior to student teaching. Since the subjects were sampled from all Education 120 classes, special instructions were given to the class instructors concerning their students in experimental and control groups.

Design Explanation

Group A or the Experimental Group - This group received instruction through the perceptual modeling of the ten categories of a modified Flanders Interaction Analysis System presented via video tape and discussion during a four-hour instructional block of Education 120. This time period was adequate as Young (9) and Lange (7) found that a brief exposure to the specific modeled behavior was most effective for learning a complex verbal

teaching behavior. During this instruction, which was done by the researcher, the students were first introduced to a modified Flanders System of Interaction Analysis by discussion and handout sheets showing the various categories. The students were then shown the procedure of recording classroom behavior utilizing the recording sheet. The interaction analysis matrix was then discussed.

Next, a video tape modeling concept of a modified Flanders System of Interaction Analysis was presented to the students. After each modeled category had been viewed, the students discussed the modeled behavior. Live modeling of the categories by the students followed the video-tape presentation. The instruction ended with a general discussion of the modified System and a summary. Instruction for the experimental group was done by the principal researcher.

Group B or the Control Group - This group received symbolic modeling instruction through discussion and other verbal means only concerning the concepts of a modified Flanders Interaction Analysis System during a four-hour instructional block of Education 120.

The instruction was divided into two parts. First, the students listened to an audio tape recording of a typical classroom lesson. They then proceeded to analyze the lesson using the concepts contained in the modified Flanders System without reference to a specific system.

In the second part, they were given a sheet which asked them to list those characteristics present in a healthy classroom atmosphere. Upon completion, they then discussed those characteristics (symbolic modeling). Instruction for the control group was done by a teacher of many years' experience who was

enrolled in the doctoral program full time as a graduate assistant and instructor in the Education 120 program.

Video Recording Procedures

The video taped presentation of a modified Flanders Interaction Analysis System was prepared prior to the experiment. The tape was divided into three parts: (1) A brief taped introduction to the category; (2) A brief taped introduction to the modeling of the category behavior; and (3) A brief taped series (usually 3) of simulations demonstrating the behavior of each category.

The taped introduction to each of the ten categories was presented by Dr. Kenneth Murray and the introduction to the taped simulations was presented by the researcher. Instructors for each of the taped category simulations consisted of doctoral students working in the Education 120 program who were familiar with the modified Flanders' System; the students in the simulations were played by previous teacher-trainees who had finished Education 120 and who were also familiar with the modified Flanders System.

A paper entitled "Modeling Concepts of Flanders System of Interaction Analysis" was prepared by the researcher and served as a script and guide for the video-taped presentation. The paper consists of classroom situations illustrating each of Flanders' ten categories. The situations are representative simulations of secondary classroom situations in the content areas of math, science, social studies, and language arts.

In its final form then, the video tape represented taped teaching episodes or simulations emphasizing specific teaching behaviors or categories representative of the Flanders Interaction Analysis System. Preceding each

category or behavior was an introduction to the category and an introduction to the simulation.

ANALYSIS

A modified Flanders System of Interaction Analysis was the principal instrument used to collect the data regarding the verbal behaviors of the student teachers in their respective school situations, which were the dependent variables.

The Flanders System of Interaction Analysis, concerned with verbal behavior only, provides a reliable instrument which can be used to quantify objectively verbal behavior in a classroom situation. A description of the modified Flanders System of Interaction Analysis appears in figure 1, p. 12.

Data Collection

During the student teaching experience, the subjects were observed in their respective school situations by three trained, reliable observers utilizing the modified Flanders instrument for measuring classroom verbal behavior or interaction.

Verbal behavior was recorded in each of five observations of fifteen minutes each for each of the fifty-two subjects of this study. To insure a representative sampling of teacher behavior, the observations were conducted at the beginning, in the middle, and twoard the end of the student teaching experience. Also, classroom lessons were observed for each individual at various times, such as at the beginning of the lesson, during the middle, or toward the latter part of the lesson.

The interaction analysis data for each subject and group were thus recorded and the raw interaction analysis data were then arranged and punched

TABLE I

A COMPARISON OF THE EXPERIMENTAL AND CONTROL GROUPS CONCERNING THE DEPENDENT VARIABLES

Dependent Variables	Perceptual Modeling Interaction Analysis (N=26) X_1	S.D.	Symbolic Modeling Interaction Analysis (N=26) X_2	S.D.	$\bar{X}_1 - \bar{X}_2$	t	p
Category							
1	0.37	0.46	0.15	0.24	0.22	2.10	.05
2	2.60	0.96	1.18	1.16	1.42	3.81	.001
3	15.37	5.80	10.05	3.81	5.32	3.90	.001
4	14.87	4.01	12.95	5.00	1.92	1.53	N.S.
5	15.45	7.39	28.98	9.92	15.53	5.57	.001
6	1.66	1.12	2.85	1.65	1.19	3.02	.01
7	0.66	0.51	1.22	0.90	0.62	3.07	.01
8	16.00	6.82	15.05	7.47	0.95	0.47	N.S.
9	20.60	10.07	13.02	5.97	7.58	3.30	.01
10	0.12	0.06	0.15	0.93	0.01	0.94	N.S.
Extended Indirect Teacher Talk	12.65	6.31	9.10	8.89	3.65	9.10	.001
Extended Direct Teacher Talk	12.88	2.33	26.60	4.89	18.80	3.32	.01
I/D Ratio	2.27	1.30	0.85	0.52	1.42	5.16	.001
i/d Ratio	15.07	16.02	3.91	3.10	3.91	3.48	.001
S/T Ratio	0.80	0.41	0.51	0.21	0.29	3.19	.01
Extended Student Talk	11.00	9.38	8.00	5.00	3.00	5.70	.001

on IBM cards. All raw data after being preserved on IBM cards were then fed into an IBM 360/70 computer. A special computer program processed the raw interaction analysis data and appropriate ratios and means were computed and printed out for the individual subjects and the two groups on each of the dependent variables.

The interaction analysis data describing the dependent variables being measured in this study were properly and orderly arranged and punched on IBM cards for final treatment. These data cards were then treated by an IBM 360/70 computer with a special computer program designed for computing a multiple t test analysis for the two groups on each of the dependent variables being considered in this study. (Re: Table I)

FINDINGS

The student teachers of the experimental group differed significantly from the control group student teachers concerning the dependent variables in that:

First, the experimental student teachers used more acceptance of student feelings. As indicated, the t ratio on this variable was significant at the .05 level.

Second, the experimental student teachers used more praise and encouragement of student action and behavior. The t ratio concerning this variable was significant at the .001 level indicating group difference.

Third, the experimental student teachers used more acceptance and clarification of student ideas. A significant t ratio at the .001 level showed significant difference on this variable.

Fourth, the experimental student teachers used less lecture. The t ratio was the high on this variable and reached significance at the .001 level.

Fifth, the experimental student teachers spent less time in giving directions. The .01 level of significance of the t ratio revealed a difference in the two groups in regard to this variable.

Sixth, the experimental student teachers spent less time in criticizing student behavior or actions and in giving corrective feedback. The t ratio was significant at the .01 level which indicated difference in the two groups on this variable.

Seventh, the experimental student teachers stimulated more student initiated talk. As indicated by a t ratio significant at the .01 level on the S/T ratio, this indicated a difference between the two groups concerning this variable.

Eighth, the experimental student teachers used less extended direct teacher talk. A t ratio significant at the .05 level indicated a difference in the two groups on this variable.

Ninth, the experimental student teachers used more indirect teacher talk. The t ratio on the I/D ratio variable was significant at the .001 level.

Tenth, the experimental student teachers used more extended indirect teacher talk. A t value significant at the .05 level indicated group difference on this level.

As set forth previously, all the null hypotheses except two were re-

jected. The data analyzed in this study indicated that student teachers who participated in the modeling concept presentation of interaction analysis did show significantly different behavior patterns on thirteen of the variables tested.

SUMMARY AND CONCLUSIONS

1. As demonstrated in this study, there is evidence to support the theory that a single brief exposure to a model demonstrating a specific set of behaviors (in this case, Flanders' categories) was sufficient to bring about behavioral change in student teachers.

2. Student teachers who received a perceptual modeling concept presentation of interaction analysis during pre-service training did show significantly different verbal behavior in their classrooms than did those student teachers who received a symbolic modeling concept presentation of interaction analysis.

3. As demonstrated by this study, the use of the video tape recorder to present modeling sequences of definite behaviors is an effective instructional technique and an effective means of transmitting behavior.

4. As demonstrated by this study, the student teachers who received a modeling concept presentation of interaction analysis incorporated more of the indirect behaviors, whereas the control group seemed to incorporate more of the direct behaviors.

Sixteen student teacher behavioral variables were examined. Of these, all reached significance at the .05 level except three. Of these three, two

reached significance at the .10 level. Seven of the variables reached the .001 level of significance. Five variables reached the .01 level of significance. Five variables reached the .01 level of significance and one reached significance at the .05 level.

Figure 1

CATEGORIES FOR INTERACTION ANALYSIS TO BE USED IN THIS STUDY*

TEACHER TALK INDIRECT	1. ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.
	2. PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head.
	3. ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas or suggestions by a student. As teacher brings more of his own ideas into play, shift to category five.
	4. ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
TEACHER TALK DIRECT	5. LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking rhetorical questions.
	6. GIVING DIRECTIONS: directions, commands, or orders to which a student is expected to comply.
	7. CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing, extreme self-reference.
STUDENT TALK	*8. ELICITED RESPONSES: includes conforming responses to narrow questions and requests and all responses which are highly predictable as a function of their having been previously associated with a specific stimulus or class of stimuli.
	*9. EMITTED RESPONSES: includes responses to broad questions or requests which have not been previously associated with specific stimuli or a class of stimuli. Such responses often require student judgment or opinion and may be declarative statements not called for by teacher questions.
	10. SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

*The categories of verbal behavior used in this system are basically those used by Flanders in his ten category system of interaction analysis. Categories 8 and 9 represent the only changes in Flanders' category system.

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